- 1. A method for determining whether a test
- 2 compound modulates the drug resistance of a cell, the method
- 3 comprising:
- a) determining the level of Chk1 expression in a
- 5 cell in the presence of a test compound;
- 6 b) determining the level of Chk1 expression in the
- 7 cell in the absence of the test compound; and
- 8 c) identifying the compound as a modulator of drug
- 9 resistance of the cell if the level of expression of Chk1 in
- 10 the cell in the presence of the test compound differs from
- 11 the level of expression of Chk1 in the cell in the absence
- 12 of the test compound.
 - 1 2. The method of claim 1 wherein the Chk1 is
 - 2 encoded by an endogenous gene.
 - 3. A method for determining whether a test
 - 2 compound modulates the drug resistance of a cell, the method
 - 3 comprising:
 - a) incubating Chk1 protein in the presence of a test
 - 5 compound;
 - 6 b) determining whether the test compound binds to
 - 7 the Chk1 protein;
 - 8 c) selecting a test compound which binds to the Chk1
 - 9 protein;
- d) administering the test compound selected in step
- 11 c) to a non-human mammal having drug resistant cells;
- e) determining whether the test compound alters the
- 13 drug resistance of the cells in the non-human mammal; and
- f) identifying the test compound as a modulator of
- 15 drug resistance of the cell if the compound alters the drug
- 16 resistance of the cells in step e).

- 1 4. A method for determining whether a test cell
- 2 has a drug-resistant phenotype, the method comprising:
- a) measuring the expression of Chk1 in the test
- 4 cell;
- b) comparing the expression of Chk1 measured in step
- 6 a) to the expression of Chk1 in a control cell not having a
- 7 drug-resistant phenotype; and
- 8 c) determining that the test cell has a drug
- 9 resistant phenotype if the expression of Chk1 in the test
- 10 cell is greater than the expression of Chk1 in the control
- 11 cell.

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- 1 5. A method of determining whether a test cell has
- 2 a drug-resistant phenotype, the method comprising:
 - a) measuring the activity of Chk1 in the test cell;
- 4 b) comparing the activity of Chk1 measured in step
- 5 a) to the activity of Chk1 in a control cell not having a
- 6 drug-resistant phenotype; and
- 7 c) determining that the test cell has a drug
- 8 resistant phenotype if the activity of Chkl in the test cell
- 9 is greater than the activity of Chk1 in the control cell.
- 1 6. A method for determining whether a subject has
- 2 or is at risk of developing a drug resistant tumor, the
- 3 method comprising:
- 4 a) measuring the expression of Chk1 mRNA in a
- 5 biological sample obtained from the subject;
- 6 b) comparing the expression of Chk1 mRNA measured in
- 7 step a) to the expression of Chk1 mRNA in a biological
- 8 sample obtained from a control subject not having a drug
- 9 resistant tumor; and
- 10 c) determining that the patient has or is at risk of
- 11 developing a drug resistant tumor if the expression of Chk1

- 12 mRNA in the biological sample obtained from the patient is
- 13 higher than the expression of Chk1 mRNA in the biological
- 14 sample obtained from the control subject.
 - 7. The method of claim 6, wherein step a)
- 2 comprises the use of a nucleic acid molecule that hybridizes
- 3 to Chk1 mRNA.
- 1 8. A method for determining whether a subject has
- 2 or is at risk of developing a drug resistant tumor, the
- 3 method comprising:
- a) measuring the activity of Chkl in a biological
- 5 sample obtained from the subject;
- b) comparing the activity of Chkl measured in step
- 7 a) to the expression of Chk1 mRNA in a biological sample
- 8 obtained from a control subject not having a drug resistant
- 9 tumor; and
- 10 c) determining that the patient has or is at risk of
- 11 developing a drug resistant tumor if the activity of Chk1 in
- 12 the biological sample obtained from the patient is higher
- 13 than the activity of Chk1 in the biological sample obtained
- 14 from the control subject.
 - 1 9. The method of claim 8, wherein step a)
 - 2 comprises the use of an agent that binds to Chk1 protein.
 - 1 10. A method for monitoring the effect of an anti-
 - 2 tumor treatment on a patient, the method comprising:
 - a) measuring the expression of Chk1 in a tumor
 - 4 sample obtained from the patient;
 - 5 b) comparing the expression of Chk1 measured in step
 - 6 a) to the expression of Chk1 in a control sample of cells;
 - 7 and

- 8 c) determining that the anti-tumor treatment should
- 9 be discontinued or modified if the expression of Chk1 in the
- 10 tumor sample is higher than the expression of Chk1 in the
- 11 control sample of cells.
 - 1 11. The method of claim 10, wherein step a)
 - 2 comprises the use of a nucleic acid molecule that hybridizes
 - 3 to Chk1 mRNA.
 - 1 12. A method for monitoring the effect of an anti-
 - 2 tumor treatment on a patient, the method comprising:
 - a) measuring the activity of Chk1 in a tumor sample
 - 4 obtained from the patient;
 - b) comparing the activity of Chk1 measured in step
 - 6 a) to the activity of Chk1 in a control sample of cells; and
 - 7 c) determining that the anti-tumor treatment should
 - 8 be discontinued or modified if the activity of Chk1 in the
 - 9 tumor sample is higher than the activity of Chkl in the
- 10 control sample of cells.
- 1 13. The method of claim 12, wherein step a)
- 2 comprises the use of an agent that binds to Chk1 protein.
- 1 14. A method for modulating the drug resistance of
- 2 a cell, the method comprising modulating Chk1 expression
- 3 within the cell.
- 1 15. A method reducing the drug resistance of cell,
- 2 the method comprising contacting the cell with a molecule
- 3 which reduces the expression of Chk1 within the cell.
- 1 16. A method of increasing the effectiveness of a
- 2 chemotherapeutic compound in a patient suffering from a

- 3 disorder associated with the presence of drug-resistant
- 4 neoplastic cells, the method comprising:
- a) administering a chemotherapeutic compound to the
- 6 patient; and
- b) administering a compound with reduces Chk1
- 8 expression to the patient.
- 1 17. A method of treating a mammal suspected of
- 2 having a disorder associated with the presence of drug-
- 3 resistant cells, the method comprising administering to the
- 4 mammal a compound that reduces the expression of Chk1 in the
- 5 drug-resistant cells, the reduction be sufficient to reduce
- 6 the drug resistance of the drug resistant cells.
- 1 18. A method for increasing the drug resistance of
- 2 cell that has an undesirably low level of Chk1 expression,
- 3 the method comprising exposing the cell to a compound that
- 4 increases the expression of Chkl.
- 1 19. A method for treating a drug resistant tumor in
- 2 a patient, the method comprising administering to said
- 3 subject an amount of a Chk1 antagonist effective to reduce
- 4 drug resistance of said tumor in the patient.
- 1 20. The use of an inhibitor of Chk1 expression, or
- 2 pharmaceutically acceptable salt thereof, or a
- 3 pharmaceutical composition containing either entity, for the
- 4 manufacture of a medicament for the treatment of a drug
- 5 resistant tumor in a patient.